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EXAMINER	
ELPENORD, CANDAL	

ART UNIT	PAPER NUMBER
2473	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,092	AUTERINEN, OTSO	
	Examiner	Art Unit	
	CANDAL ELPENORD	2473	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 March 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,10-15,17,20,21,26-42 and 44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 4, 10-15, 17, 20-21, 26-42, 44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed March 16, 2010 have been fully considered but they are not persuasive.

2. Claims 1, 17, 20-21, 42, 44 have been amended.

Regarding the Applicants' asserted arguments concerning the rejection USC 103(a) rejection of claims 1, 17, 20, 21, 42, 44, the Examiner respectfully disagrees with the entirety of the alleged assertions. Additionally, the Examiner respectfully asserts that Kirkby et al (US 2002/0097747 A1) teaches the newly added features as discussed below.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claim 44** recites the limitation "the resource manger" recited in line 9. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. **Claims 1, 4, 10-11, 14, 17, 20-21, 26-29, 31-39, 41** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ravishankar et al (US 7,580,424 B2) in view of Kirkby et al (US 2002/0097747 A1).

Regarding claims 1, 17, 20-21 Ravishankar '424 discloses (Currently Amended) a system (fig. 1, communications system and method for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), comprising: user equipment (fig. 1, mobile terminal coupled to terminal equipment, col. 3, lines 25-39); a resource node (fig.. 1, Base station transceiver 118 from which the terminal equipment is coupled to, col. 3, lines 40-53) configured to provide access to a wireless connection coupled to the user equipment (fig. 1, mobile terminal coupled to terminal equipment, col. 3, lines 25-39) and to manage resource for communication (fig. 1, base station system coupled to BTS for allocating resources, col. 9, lines 12-2, col. 6, lines 41-49) with said user equipment (fig. 1, mobile terminal coupled to terminal equipment, col. 3, lines 25-39); and a managing node (fig. 3b, see GGSN node 112) configured to manage traffic flow (see, GGSN node providing signal and data connectivity, col. 3, lines 55-61) wherein said resource node (fig. 1, base station system coupled to BTS for

allocating resources, col. 9, lines 12-2, col. 6, lines 41-49) and said managing node (fig. 3b, see GGSN node 112) are configured so that negotiation information (fig. 3b to fig. 3c, connection setup information being shared between BSS and GGSN node where the mobile station negotiates QoS parameters for real-time voice traffic for PDP context activation, col. 5, lines 65 to col. 6, lines 49) determined by the at least one resource node is passed between the resource node and the managing node (fig. 3b, 3c, 3d, connection setup/negotiated information being passed between the network elements, col. 7, lines 1-14, see, the GGSN node creating a PDP context based on the negotiated QoS, fig. 3a, col. 4, lines 59-67).

Ravishankar '424 discloses all the claimed limitations as set forth above with the exception of claimed features:

Regarding claim 1, said managing node selecting a parameter for a new traffic flow based on said negotiation information determined at the resource node, wherein said negotiation information comprises cost, the cost determined at the resource node based, at least in part, on current data flows at the resource node.

However, Kirby '747 from the same field of endeavor discloses the above claimed features:

Regarding claim 1, said managing node (fig. 5, service manager 61 for implementing QoS for end users requests, paragraph 0068, lines 1-5), selecting a parameter (see, plurality of traffic classes that are capable of being selected, paragraph 0057, lines 1-8, paragraph 0058, lines 1-4) for a new traffic flow (see, new inelastic traffic stream classes, paragraph 0069, lines 8-11) based on said negotiation

information (see, negotiating between the layers, paragraph 0014, lines 4-9) determined at the resource node (see, software manager for managing and controlling communications, paragraph 0009, see, resource manager, paragraph 0068, lines 7-13), wherein said negotiation information comprises cost (see, path price information and traffic value based negotiation of resources usage, paragraph 0094, lines 4-10), the cost determined at the resource node based, at least in part, on current data flows (see, new inelastic traffic stream classes, paragraph 0069, lines 8-11) at the resource node (see, the combination of software manager for managing and controlling communications, paragraph 0009, see, resource manager, paragraph 0068, lines 7-13).

In view of the above, having the system and method for providing real-time communications based negotiated QoS parameters of Ravishankar '424, the communications network for allocation of resources based on a price factor of Kirkby '747, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching features of Ravishankar '424 by suing teaching features as taught by Kirby '747 in order to provide allocation of resources based on negotiation as suggested in paragraph 0014, lines 5-8.

Regarding claim 4 (Previously Presented) Ravishankar '424 discloses a system (fig. 1, communications system for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein said negotiation information (see, packet protocol data context reflecting the negotiated QoS, col. 4, lines 49-56) further comprises at least one of type of traffic (see, real-time traffic (i.e. Voice) or non-real-time relating to the negotiated QoS parameters, col. 6, lines 1-8, col. 2, lines 19-

28).

Regarding claim 10 (Previously Presented) Ravishankar '424 discloses a system (fig. 1, communications system for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein said managing node is located at an edge of a network (fig. 3b, see GGSN node 112 which located at the edge of network).

Regarding claim 11 (Previously Presented) Ravishankar '424 discloses a system(fig. 1, communications system for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein said managing node comprises a gateway general packet radio service support node (fig. 3b, see GGSN node 112).

Regarding claim 14 (Previously Presented) Ravishankar '424 discloses a system (fig. 1, communications system for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein the managing node (see, GGSN node providing signal and data connectivity, col. 3, lines 55-61) further provides detecting a new flow and wherein communication between the managing node and resource node (fig.. 1, Base station transceiver 118 from which the terminal equipment is coupled to, col. 3, lines 40-53) is via a general packet radio service tunneling protocol (fig. 1, fig. 3d, see, real-time data connections using GPRS tunneling protocol, col. 7, lines 16-32).

Regarding claims 17, 20-21, the combined teaching features of Ravishankar '424 in view of Kirby '747 as disclosed above in the rejection of claim 1 encompasses the subject mater of claims 17, 20-21 respectively.

Regarding claim 26 (Previously Presented) Ravishankar '424 discloses apparatus (fig. 1, communications system and method for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein said parameter is at least one of the following, traffic handling class (see, QoS parameter relating to real-time and non-real-time session, col. 2, lines 19-28, col. 5, lines 1-13).

Regarding claim 27, (Previously Presented) Ravishankar '424 discloses an apparatus (fig. 1, communications system and method for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein the apparatus comprises an access node (fig. 1, BTS 118 which provides access to the mobile terminal/user equipment) which is configured to communicate with user equipment (fig. 1, mobile terminal coupled to terminal equipment, col. 3, lines 25-39).

Regarding claim 28 (Previously Presented) Ravishankar '424 discloses an apparatus (fig. 1, communications system and method for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein the access node is a base station (fig. 1, BTS 118 which provides access to the mobile terminal/user equipment).

Regarding claim 29 (Previously Presented) Ravishankar '424 discloses an

apparatus (fig. 1, communications system and method for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein said apparatus is comprised in an access node (fig. 1, BTS 118 which provides access to the mobile terminal/user equipment).

Regarding claim 31 (Previously Presented) Ravishankar '424 discloses a method (fig. 1, communications system and method for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), further comprising negotiating (see, packet protocol data context reflecting the negotiated QoS, col. 4, lines 49-56) in order to select the at least one parameter (see, real-time traffic (i.e. Voice) or non-real-time relating to the negotiated QoS parameters, col. 6, lines 1-8, col. 2, lines 19-28).

Regarding claim 32 (Previously Presented) Ravishankar '424 discloses a method (fig. 1, communications system and method for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein said negotiation information further comprises at least one of type of traffic and bit rate of the traffic (see, real-time traffic (i.e. Voice) or non-real-time relating to the negotiated QoS parameters, col. 6, lines 1-8, col. 2, lines 19-28).

Regarding claim 33 (Previously Presented) Ravishankar '424 discloses a method (fig. 1, communications system and method for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein said negotiation information is determined for a plurality of different traffic handling classes

(see, real-time traffic (i.e. Voice) or non-real-time relating to the negotiated QoS parameters, col. 6, lines 1-8, col. 2, lines 19-28, see traffic classes as delay class, precedence class, col. 5, lines 1-20).

Regarding claim 34 (Previously Presented) Ravishankar '424 discloses a method (fig. 1, communications system and method for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein said parameter is at least one of the following, traffic handling class (see, real-time traffic (i.e. Voice) or non-real-time relating to the negotiated QoS parameters, col. 6, lines 1-8, col. 2, lines 19-28, see traffic classes as delay class, precedence class, col. 5, lines 1-20).

Regarding claim 35 (Previously Presented) Ravishankar '424 discloses an apparatus (fig. 1, communications system and method for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein said apparatus is comprised in a managing node located at an edge of a network (fig. 3b, see GGSN node 112 which located at the edge of network).

Regarding claim 36 (Previously Presented) Ravishankar '424 discloses an apparatus (fig. 1, communications system and method for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein said apparatus is comprised in a managing node comprising a gateway general packet radio service support node (fig. 3b, see GGSN node 112).

Regarding claim 37 (Previously Presented) Ravishankar '424 discloses a method (fig. 1, communications system and method for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein said

resource node is an access node (fig. 1, BTS 118 coupled to base station system which provides access to the mobile terminal/user equipment).

Regarding claim 38 (Previously Presented) Ravishankar '424 discloses a method (fig. 1, communications system and method for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein the managing node (see, GGSN node providing signal and data connectivity, col. 3, lines 55-61) further provides guiding an actual flow rate to a target flow rate (see, GGSN node creating PDP context based on the negotiated QoS parameters, col. 4, lines 62-67).

Regarding claim 39 (Previously Presented) Ravishankar '424 discloses a method as claimed in claim 17, wherein the managing node (see, GGSN node providing signal and data connectivity, col. 3, lines 55-61) further provides detecting a new flow (see, GGSN node creating PDP context based on the negotiated QoS parameters, col. 4, lines 62-67).

Regarding claim 41 (Previously Presented) Ravishankar '424 discloses a method (fig. 1, communications system and method for providing differentiated service based on the service parameters, col. 3, lines 25-39, col. 1, lines 57-67), wherein communication between the managing node (see, GGSN node providing signal and data connectivity, col. 3, lines 55-61) and resource node (fig.. 1, Base station transceiver 118 from which the terminal equipment is coupled to, col. 3, lines 40-53) is via a general packet radio service tunneling protocol or a multi-protocol label switching

protocol (fig. 1, fig. 3d, see, real-time data connections using GPRS tunneling protocol, col. 7, lines 16-32).

1. **Claims 15, 30, 40** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ravishankar et al (US 7,580,424 B2) in view of Kirkby et al (US 2002/0097747 A1) A1) as applied to claim 1 above, and further view of Arunachalam et al (US 6,631,122 B1).

The combination of Ravishankar '424 in view of Kirby '747 discloses all the claimed limitations as set forth above with the exception of claimed features:

Regarding claims 15, 30, 40 (Previously Presented) a system, wherein the resource node further provides balancing a load between available resources.

However, Arunachalam '122 from the same field discloses the above claimed features:

Regarding claim 15, wherein the resource node (fig. 3, QoS Agent 301, "QoS Agent guiding the Radio Resource Manager in allocating radio channels", recited in col. 4, line 67 - col. 5, line 16, "the resource manager determines the set of resources to be provided", recited in col. 9, line 30-35) further provides balancing a load between available resources (see, the QoS agent providing load balancing, col. 4, line 23-33).

In view of the above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined teaching features of Ravishankar '424 and Kirkby '747 by using the teaching features of Arunachalam '122

in order to provide load balancing of flow based on QoS as suggested in col. 4, line 37-47 for motivation.

Regarding claims 30, 40, please see the Examiner's comments with respect to claim 15 as discussed above.

8. **Claims 42, 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Oyama et al (US 2002/0068545 A1) in view of Kirkby et al (US 2002/0097747 A1).

Regarding claim 42, Oyama '545 discloses a method (see, mechanism of correlating charging for a multimedia session, paragraph 0070) comprising: managing at a node (see, GGSN node admission control on the data session based on QoS parameters, paragraph 0058), a traffic flow (see, GGSN node admission control on the data session based on QoS parameters, paragraph 0058); receiving negotiation information (noted: receiving of charging information, paragraph 0134) from a resource node (see resource manager in combination with base station manager (i.e. for IP service) for distributing resources (i.e. controlling or managing) for individual service, paragraph 0039) configured to provide access to a wireless connnection (noted: negotiated QoS profiles between the nodes (i.e. SGSG, GGSN nodes), paragraph 0046, 0049, noted: agreement between the network elements such as GGSG, SGSG, and the mobile terminal with respect to charging, paragraph 0135) wherein the negotiation information comprises cost (noted: charging information related to multimedia services, paragraphs 0071); and selecting at least two parameters for a new traffic flow (noted: initiation of multimedia flow by the mobile station, paragraphs 0114,

0116) based on said negotiation information (noted: the volume of packets sent, quality of service parameters (i.e. delay sensitive, background class, paragraph 0042) based on charging information, paragraphs 0116, 0130).

Regarding claim 44, Oyama '545 discloses an apparatus (fig. 6, see GPRS network with set of network elements (i.e. GGSN, SGSN nodes), paragraphs 0022), comprising: managing means (see, GGSN node admission control on the data session based on QoS parameters, paragraph 0058), at a node (fig. 6, see GGSN node GPRS network with set of network elements (i.e. GGSN, SGSN nodes), paragraphs 0022, noted: QoS management for managing negotiated QoS attributed, paragraphs 0030, 0034) for managing a traffic flow (see, GGSN node admission control on the data session based on QoS parameters, paragraph 0058), information receiving means(noted: receiving of charging information, paragraph 0134), at the node for receiving negotiation information (noted: receiving of charging information, paragraph0134) from a resource node (see resource manager in combination with base station manager (i.e. for IP service) for distributing resources (i.e. controlling or managing) for individual service, paragraph 0039); noted: negotiated QoS profiles between the nodes (i.e. SGSG, GGSN nodes), paragraphs 0046, 0049, 0023, noted: agreement between the network elements such as GGSG, SGSG, and the mobile terminal with respect to charging, paragraph 0135) configured to provide access to a wireless connection (noted: charging information related to multimedia services, paragraphs 0071, noted: charging information based on volume of packets sent, quality

of service parameters, paragraphs 0116, 0130, noted: charging information based on volume of packets sent, quality of service parameters, paragraphs 0116, 0130).

Oyama '545 discloses all the claimed limitations with the exception of claimed features:

Regarding claim 42, wherein the negotiation information comprises cost information which is determined at the resource node; the cost determined at the resource node based, at least in part, on current data flows at the resource node; and selecting at least two ~~parameter~~ parameters for a new traffic flow based on said negotiation information determined at the resource node.

Regarding claim 44, wherein the negotiation information comprises cost information which is determined at the resource node, the cost determined at the resource node based, at least in part, on current data flows at the resource node; and selecting means for selecting at least two ~~parameter~~ parameters for a new traffic flow based on said negotiation information determined at the resource manager.

However, Kirkby '747 from the same field of endeavor discloses the above claimed features:

Regarding claim 42, wherein the negotiation information comprises cost (see, path price information and traffic value based negotiation of resources usage, paragraph 0094, lines 4-10) information which is determined at the resource node (see, software manager for managing and controlling communications, paragraph 0009, see, resource manager, paragraph 0068, lines 7-13); the cost determined at the resource

node based (see, negotiating between the layers, paragraph 0014, lines 4-9) , at least in part, on current data flows (see, new inelastic traffic stream classes, paragraph 0069, lines 8-11) at the resource node (see, the combination of software manager for managing and controlling communications, paragraph 0009, see, resource manager, paragraph 0068, lines 7-13); and selecting at least two ~~parameter~~ parameters (see, fig. 3, Real time, high priority or best effort, delay sensitive) for a new traffic flow based on said negotiation information determined at the resource node (see, plurality of traffic classes that are capable of being selected, paragraph 0057, lines 1-8, paragraph 0058, lines 1-4).

Regarding claim 44, wherein the negotiation information comprises cost information (see, path price information and traffic value based negotiation of resources usage, paragraph 0094, lines 4-10) which is determined at the resource node (see, software manager for managing and controlling communications, paragraph 0009, see, resource manager, paragraph 0068, lines 7-13), the cost determined at the resource node based, at least in part, on current data flows (see, new inelastic traffic stream classes, paragraph 0069, lines 8-11) at the resource node (see, resource manger, paragraph 0068, lines 7-13); and selecting means for selecting at least two ~~parameter~~ parameters (see, fig. 3, Real time, high priority or best effort, delay sensitive) for a new traffic flow based on said negotiation information determined at the resource manager (see, plurality of traffic classes that are capable of being selected, paragraph 0057, lines 1-8, paragraph 0058, lines 1-4).

In view of the above, having the method for charging in a multimedia session of

Oyama ‘545, the communication network for allocating of resources by a manager of Kirkby '747, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching features of Oyama ‘545 by using teaching features as taught by Kirkby ‘747 in order to provide allocation of resources based on negotiation as suggested in paragraph 0014, lines 5-8.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kalyyanasundaram et al (US 7,433,311 B1).

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CANDAL ELPENORD whose telephone number is (571)

270-3123. The examiner can normally be reached on Monday through Friday 8:00AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Bin Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Candal Elpenord/

Examiner, Art Unit 2473

/KWANG B. YAO/
Supervisory Patent Examiner, Art Unit 2473